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P.H. Weis & Associates, Inc.
Engineers
Architects
Planners

9811 West Florissant
St. Louis, Missouri 63136
(314) 524-4893

Paul H. Weis, P.E.
Marvin H. Swindle, A.I.A.

July 22, 1981

Monsanto Chemical Company
Sauget, Illinois 62201

Attn: Mr. Richard Nelson

Re: Sewer Interconnection Box Investigation Report

Gentlemen:

At your request our office investigated the interconnection box labeled 2A and 2B on your company sewer map.

The investigation revealed the two chambers of the sewer box to be interconnected by two 30" pipe sections, an upper and lower one. Flow line of the upper pipe is at elevation 400.12 (USGS) while the flow line of the lower pipe is approximately 395.80 with the base of chamber 2A being at 394.78. The upper pipe section was open while the lower section was plugged with a piece of plywood over the end of the pipe. A portion of the plywood was pulled back in order to determine the nature of the plug itself within the lower pipe section. The level of the sewage and sediment behind the plywood made it difficult to remove the board and clearly view the plug. However, through probing and prying of the board it was determined the pipe section to be full of concrete.

We were also requested by your firm to investigate the possibility of crossing over the flows in an alternate box labeled 3B and 3C, and to investigate the consequences thereby produced as a result of crossing over in this box further upstream. Elevations were shot in the box and the top of the 36" pipe which runs from 3B to 3A is at USGS elevation 399.80 while the top of the 36" pipe out of 3C is at elevation 399.23.

Please find enclosed hydraulic gradient charts which indicate the levels the 24" line would reach under 4 different crossover conditions. Certain assumptions were made for the computations made in the preparation of these charts. Flows were assumed constant along the line except at the crossover points. The flow will actually vary along the line at different points where flow enters from the different plant and Village sources. Also the total discharge received at the Route 3 metering station has been divided equally between the 24" and 30" lines as they presently flow. One

must also realize that actual roughness as opposed to theoretical roughness coefficients, cleanliness of the pipe, and actual slope can result in variances of up to 10%.

Because the planned crossover directly affects Monsanto's internal operations and the fact that you are more familiar with the effect the resulting flow elevations will have on your plant, we are of the opinion that the decision of where to make the crossover and improvements necessary to achieve such, should be determined by your office.

We are in the process of receiving bids to perform the work necessary to remove the bulkhead between chambers 2A and 2B and will notify you concerning these. Please advise us concerning your decision once we have received these bids. If you have any questions on this matter, please call our office.

Yours truly,

P. H. WEIS & ASSOCIATES, INC.
ENGINEERS/ARCHITECTS/PLANNERS

Michael Walsh

Michael T. Walsh

MTW: law

cc: Steve Smith
Paul Sauget

SAUGET, ILLINOIS

ROUTE 3 MANHOLE REPAIRS

TECHNICAL STAFF CONFERENCE

Present:	Monsanto Co.	Dick Nelson
	Cerro Copper Products	Jim Johnson, Roy Brown
	Village Association	Jim Dalton
	Keeley Bros. Contr.	Arnold Czechowicz
	P. H. Weis & Assoc.	Paul Weis

Date: June 26, 1981

This meeting was a follow up meeting to discuss additional information in regard to storm water flow calculations to be developed by P. H. Weis & Associates as routed through the existing 24" and 30" sewer lines that are affected by the Route 3 manhole repair project. The hydraulic study was to determine the effect of blocking off one of the two lines during the course of construction with consideration being given to excess storm water being stored in Dead Creek which was under consideration as a temporary retention basin.

In addition to the above, data was to be developed as to determine a method of monitoring the structure just north of Dead Creek in order to notify various interested parties by an alarm device at such time that the water level in that structure and subsequently in Dead Creek would be at a pre-determined elevation so as to not affect normal functions and operations of Cerro Copper. The results of the hydraulic study were presented by P. H. Weis and Associates wherein it was set forth that 4 basic drainage areas were established that flow through two existing sewer lines and for the purposes of the study, a 20 year storm was considered. The calculations as presented showed that the total run-off that would eventually be routed through the sewers was approximately 350 cfs which translates to 155,700 gpm. It was further presented that with the water level surcharged to the point of the overflow into Dead Creek namely to elevation 399.15, the capacity of both pipes combined would be approximately 15,700 gpm or approximately 1/10 the flow that could be produced by a 20 year storm.

It was also presented by P. H. Weis & Associates that a level circuit was performed by that firm as requested at the previous meeting in order to determine the elevation of certain critical points set by Cerro Copper. Several elevations were established by survey, however, the following were presented at the meeting:

Influent elevation into manhole from Dead Creek - 399.15
Flow line of a vertical grate inlet at Dead Creek - 397.82
Water elevation of Dead Creek on 2/18/81 (from previous survey)- 399.35
Trench drain flow line in low dock at Cerro Copper - 404.94
Flow line of lift station overflow check valve at Dead Creek - 398.01

In addition to the above, a sketch and cost information was presented by Dick Nelson as developed by Monsanto Communication Technical Staff. The estimated cost for installation was $8,500.00 with an estimated telephone line charge of $50.00 per month.

General discussions of the data submitted took place wherein Mr. Paul Weis stated that considering the hydraulic data developed, it would be rather insignificant during a 20 year storm whether either of the two lines in question were temporarily closed off as it was apparent that with both lines flowing, a back up into Dead Creek would be eminent in any case.

It was further stated that in his opinion any expenditure for a monitoring system would be somewhat meaningless. This statement brought objection from Mr. Johnson of Cerro Copper in that no matter how insignificant the additional line being in operation would be, it would still cause additional flooding and cause that additional flooding to remain in Dead Creek and consequently in Cerro's plant for a longer period of time.

Next, a discussion of the critical elevations for flooding in the Cerro Plant were discussed, however, no conclusion as to what elevation within the plant would be critical as far as Cerro Copper was concerned. Since no conclusions were reached on any of the matters discussed, it was stated by Paul Weis that the information as developed and consequences would be presented to the Village of Sauget with a recommendation as to the method of procedure so that a decision could be made and the project would proceed.

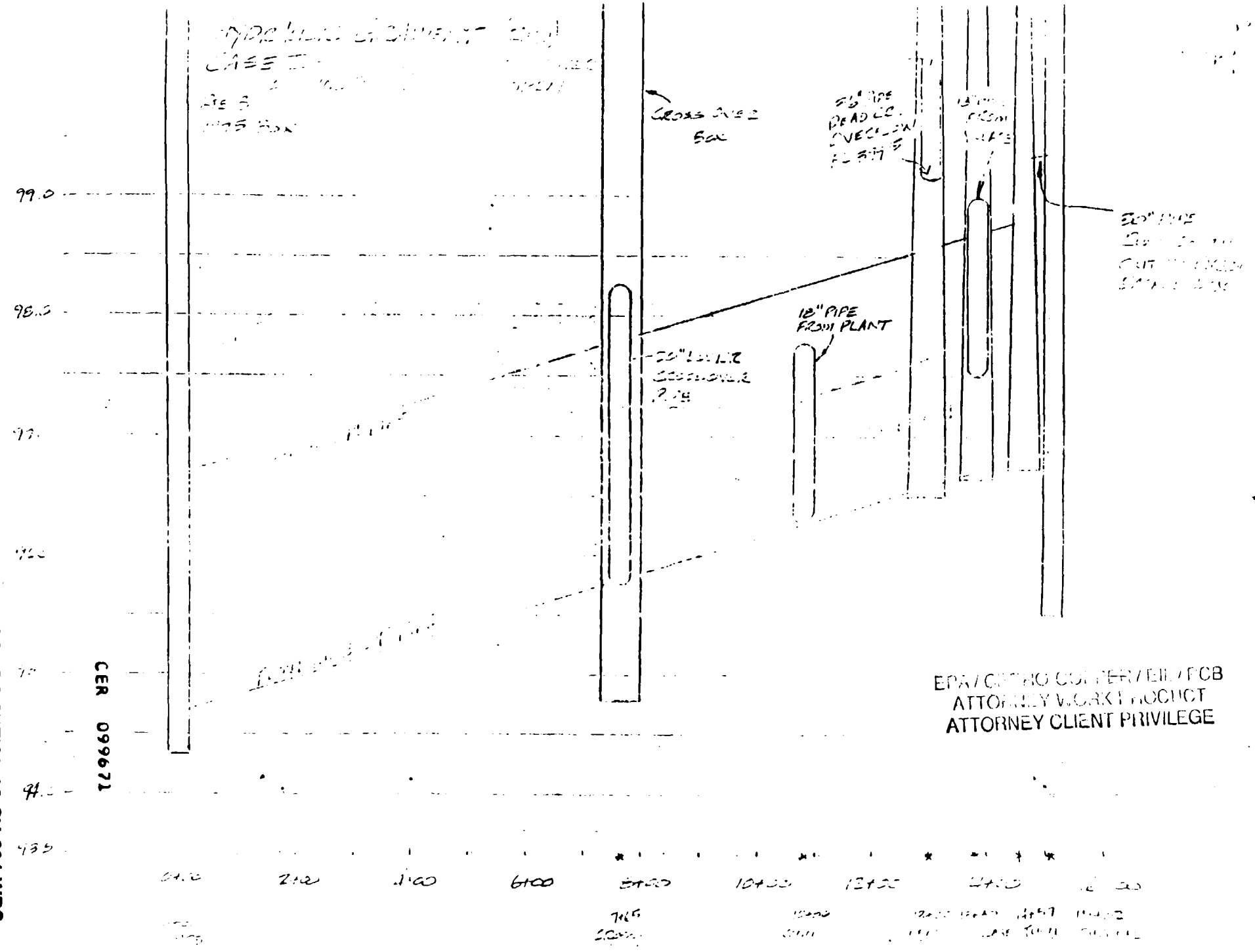
Respectfully submitted,
P. H. WEIS & ASSOCIATES, INC.

Paul H. Weis

Paul H. Weis, P.E.

PHW:law

cc:Paul Sauget
cc:Steve Smith
cc:All present



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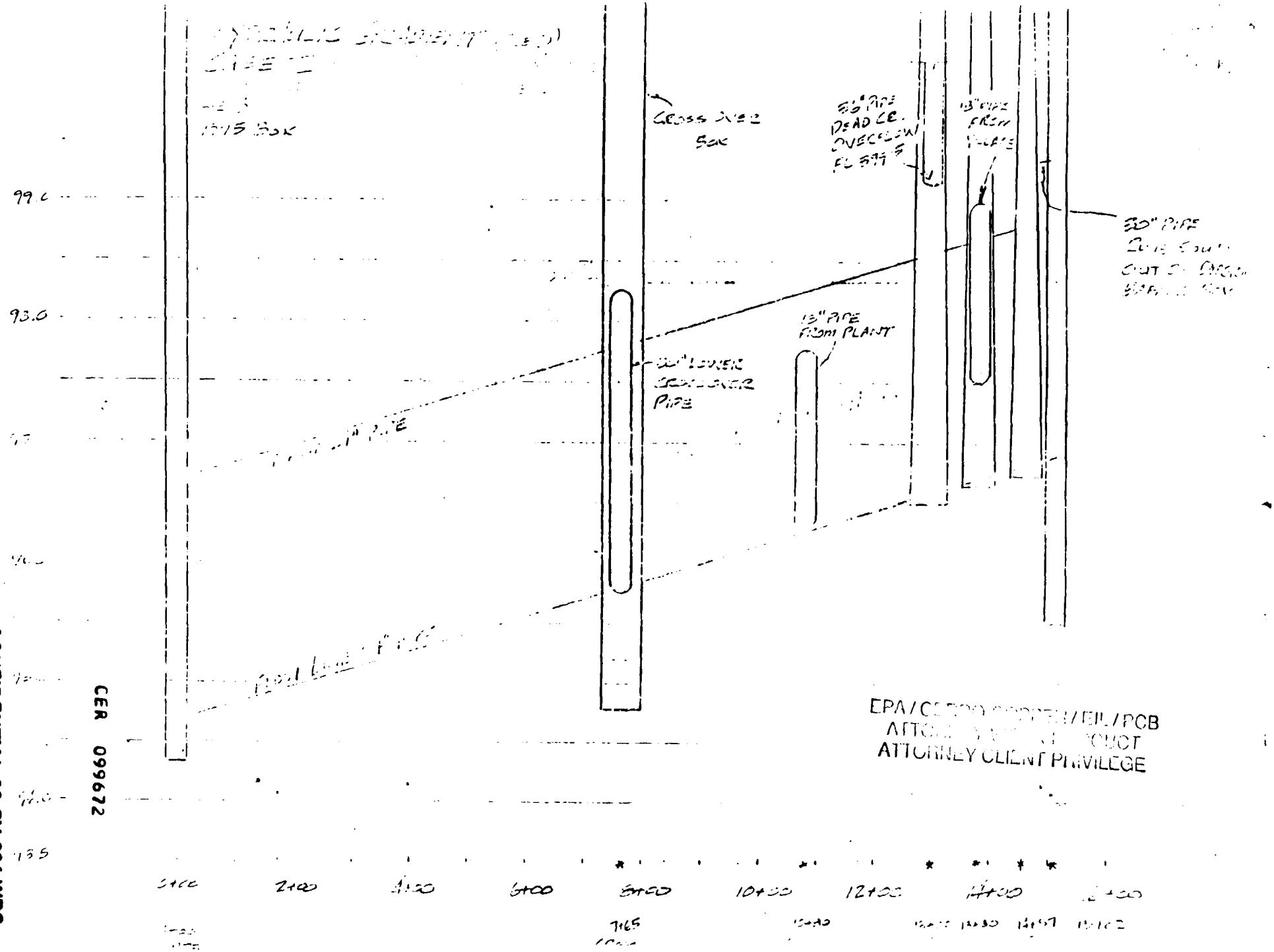

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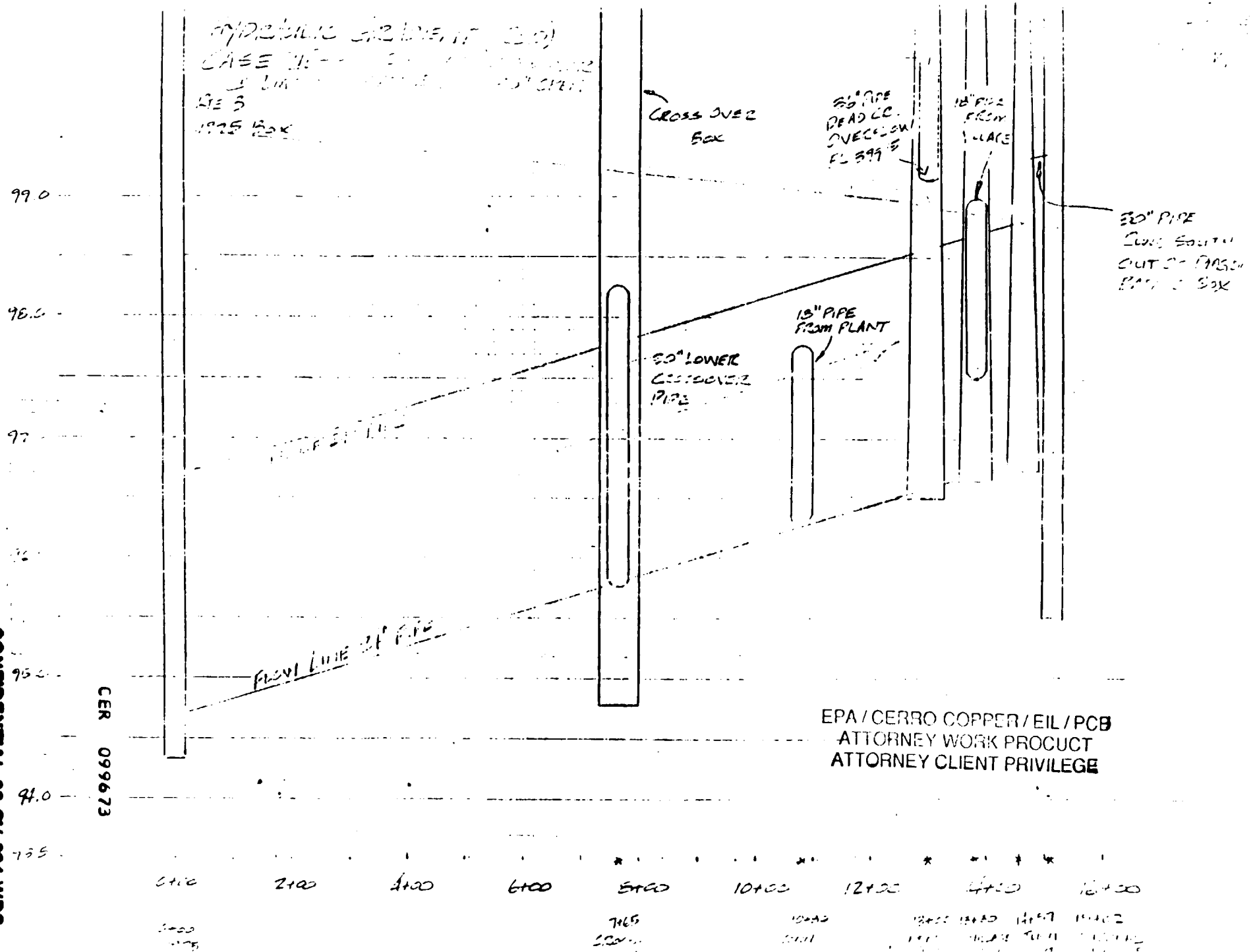

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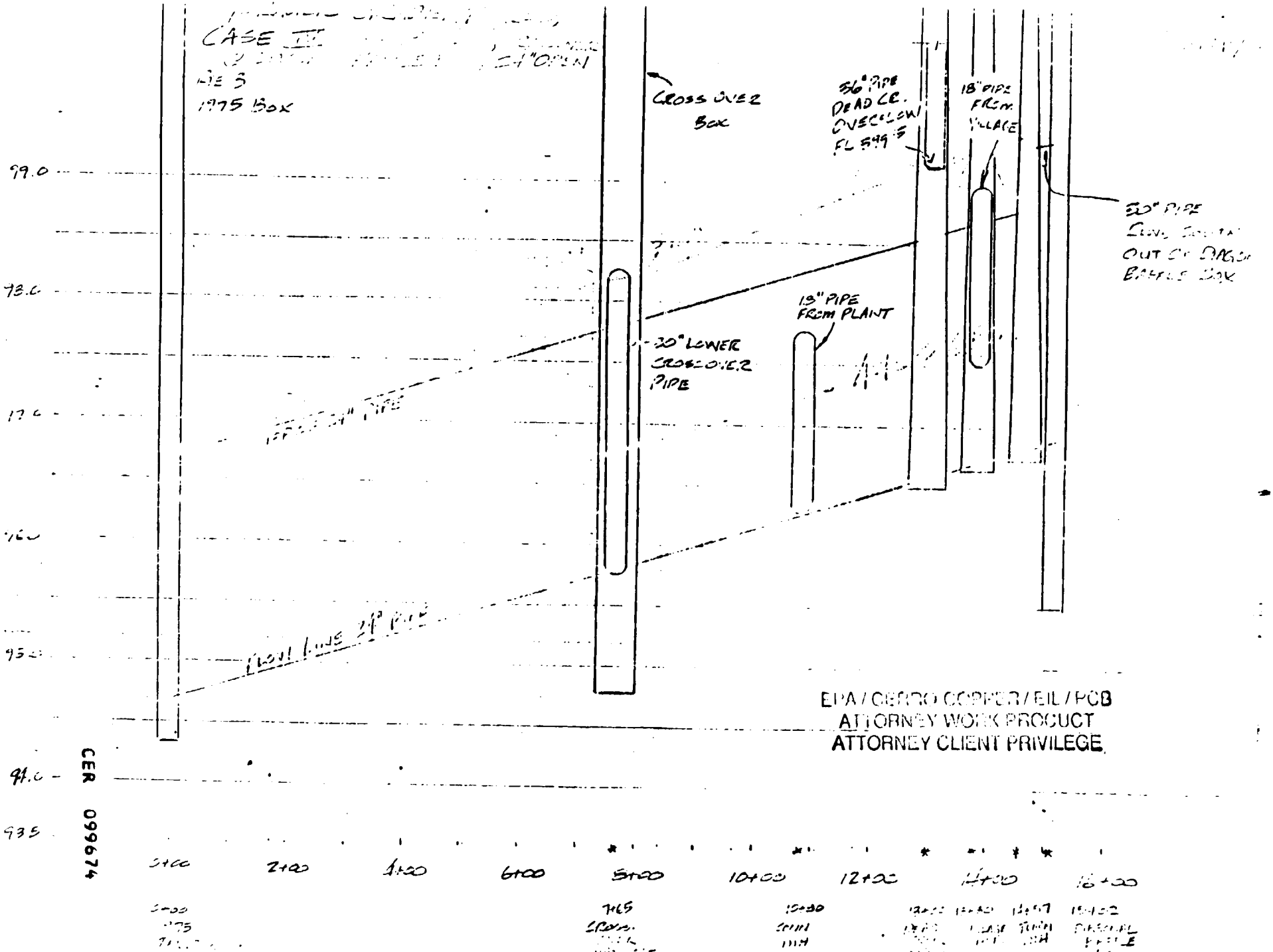

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